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Dkt. 0575/64019

UNITED STATES PATENT AND TRADEMARK OFFICE

Richard Axel and Kristin Scott

U.S. Serial No. 10/081,816

Filed February 22, 2002

For CHEMOSENSORY GENE FAMILY

GUSTATORY AND OLFACTORY RECEPTORS AND

USES THEREOF

1185 Avenue of the Americas New York, New York 10036

June 10, 2002

Assistant Commissioner for Patents Washington, D.C. 20231

Sir:

Information Disclosure Statement <u>Under 37 C.F.R §1.97(b)(3)</u>

In accordance with their duty of disclosure under 37 C.F.R. § 1.56, applicants would like to direct the Examiner's attention to the following references which are listed on the attached Form PTO-1449 (Exhibit A) and copies of which are attached hereto as Exhibits 1-45:

- PCT International Publication No. WO 00/43410, published 1. July 27, 2000 (Exhibit 1);
- International Publication No. WO 00/77208, published December 21, 2000 (Exhibit 2);
- Ben-Arie, N., Lancet, D., Taylor, C., Kehn, M., Walker, N., 3. Ledbetter, D.H., Carrozzo, R., Patel, K., Sheer, Lehrach, H., and et al., (1994) Olfactory receptor gene cluster on human chromosome 17: possible duplication of an ancestral receptor repertoire. Hum. Mol. Genet. 3: 229-235

Serial No.: 10/081,816 Filed: February 22, 2002

Page: 2

(Exhibit 3);

- 4. Bowie, James U., Reidhaar-Olson, J.F. (1990) Deciphering the message in protein sequences: tolerance to amino acid substitutions. Science 247: 1306-1310 (Exhibit 4);
- 5. Buck, L. and Axel, R. (1991) A novel multigene family may encode odorant receptors: a molecular basis for odor recognition. Cell. 65: 175-187 (Exhibit 5);
- 6. Chandrashekar, J. et al (2002) T2Rs Function as Bitter Taste Receptors. Cell 100: 703-711 (Exhibit 6);
- 7. Chaudhari, N. et al (2000) A Metabotropic Glutamate Receptor Variant Functions as a Taste Receptor. Nature neuroscience 3,2: 113-119 (Exhibit 7);
- 8. Clyne, Peter J. et al (2000) Candidate Taste Receptors in Drosophila. Science 287: 1830-1834 (Exhibit 8);
- 9. Clyne, Peter J. et al (1999) A Novel Family of Divergent Seven-Transmembrane Proteins: Candidate Odorant Receptors in Drosophila. Neuron 22: 327-338 (Exhibit 9);
- 10. Dahanukar, A. et al (2001) A Gr Receptor is Required for Response to the Sugar Trehalose in Taste Neurons of Drosophila. Nature neuroscience 4,12: 1182-1186 (Exhibit 10);
- 11. Doe, C. Q., and Skeath, J.B. (1996) Neurogenesis in the insect central nervous system. Curr.Opin. Neurobiol. 6:18-24 (Exhibit 11);

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- 12. Dulac, Catherine et al (1995) A Novel Family of Genes Enclding Putative Pheromones Receptors in Mammals. Cell 83: 195-206 (Exhibit 12);
- 13. Dunipace, L. et al (2001) Spatially Restricted Expression of Candidate Taste Receptors in the Drosophila Gustatory System. Current Boilogy 11: 822-835 (Exhibit 13);
- 14. Faber, T., Joerges, J., and Menzel, R. (1998) Associative learning modifies neural representations of in the insect brain. Nature Neurosci. 2: 74-78 (Exhibit 14);
- 15. Gao, Q. et al. (July 1999) Identification of candidate olfactory receptors from genomic DNA sequence. Genomics 60: 31-39 (Exhibit 15);
- 16. Gimelbrandt, A.A. et al. (February 1999) Truncation releases olfactory receptors from endoplasmic reticulum of heterologous cells. J. Neurochem. 72(6): 2301-2311 (Exhibit 16);
- 17. Grillenzoni, N., van Helden, J., Dambly-Chaudiere, C., and Ghysen, A. (1998) The iroquois complex controls the somatotopy of Drosophila notum mechanosensory projections.

 Development 125: 3563-3569 (Exhibit 17);
- 18. Herrada, G., and Dulac, C. (1997) A novel family of putative pheromone receptors in mammals with a topographically organized and sexually dimorphic distribution. Cell 90:763-773 (Exhibit 18);

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- 19. Hoon, Mark A. et al (1999) Putative Mammalian Taste Receptors: A Class of Taste-Specific GPCRs with Distinct Topographic Selectivity. Cell 96: 541-551 (Exhibit 19);
- 20. Ishimoto, Hiroshi et al (2000) Molecular Identification of a Taste Receptor Gene for Trehalose in Drosophila. Science 289: 116-119 (Exhibit 20);
- 21. Kim, M. S., Repp, A., and Smith, D.P. (1998) LUSH odorant-binding protein mediates chemosensory responses to alcohols in Drosophila melanogaster. Genetics 150: 711-721 (Exhibit 21);
- 22. Levy, N.S., Bakalyar, H.A., and Reed, R.R. (1991) Signal transduction in olfactory neurons. J. Steroid Biochem. Mol. Biol. 39: 633-637 (Exhibit 22);
- 23. Malnic, B. et al (1999) Combinatorial Receptor Codes for Odors. Cell 96: 713-723 (Exhibit 23);
- 24. Matsunami, H., and Buck, L. B. (1997) A multigene family encoding a diverse array of putative pheromone receptors in mammals. Cell 90: 775-784 (Exhibit 24);
- 25. Matsunami, H. et al (2000) A Family of Candidate Taste Receptors in Human and Mouse. Nature 404: 601-604 (Exhibit 25);
- 26. Mckenna, M.P., Hekmat-Scafe, D.S., Gaines, P., and Carlson, J.R. (1994) Putative Drosophila pheromone-binding proteins expressed in a subregion of the olfactory system. J. Biol. Chem. 269:16340-16347 (Exhibit 26);

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- 27. Merritt, D. J., and Whitington, P.M. (1995) Central projections of sensory neurons in the Drosophilaembryo correlate with sensory modality, soma position, and proneural gene function. J. Neurosci.15:1755-1767 (Exhibit 27);
- 28. Mitchell, B. K. et al (1999) Peripheral and Central Structures Involved in Insect Gustation. Microscopy Research and Technique 47: 401-415 (Exhibit 28);
- 29. Montmayeur, J. et al (2001) A Candidate Taste Receptor Gene Near a Sweet Taste Locus. Nature neuroscience 4,5: 492-498 (Exhibit 29);
- 30. Nelson, G. et al (2001) Mammalian Sweet Taste Receptors.
 Cell 106: 381-390 (Exhibit 30);
- 31. Ngai, J. et al (1993) The Family of Genes Encoding Odorant Receptors in the Channel Catfish. Cell 72: 657-666 (Exhibit 31);
- 32. Ngo, J.T., Marks, J., Karplus, M. (1994) Computational Complexity, Protein Structure Prediction, and the Levinthal Paradox. In: Merz, K. Jr. and Le Grand, S. (Eds) The Protein Folding Problem and Tertiary Structure, Chapter 14, pp 492-495, Birkhäuser, Boston (Exhibit 32);
- 33. Parmentier, M., Libert, F., Schurmans, S., Schiffmann, S., Lefort, A., Eggericks, D., Ledent, C., Molleareau, C., Gerard, D., and et al. (1992) Expression of members of the putative olfactory receptor gene family in mammalian germ cells. Nature, 355:453-455 (Exhibit 33);

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- 34. Pelosi, P. (1994) Odorant-binding proteins. Crit. Rev. Biochem. Mol. Biol. 29: 199-228 (Exhibit 34);
- 35. Pikielny, C.W., Hasan, G., Rouyer, F., and Rosbash, M. (1994) Members of a family of Drosophila putative odorant-binding proteins are expressed in different subsets of olfactory hairs. Neuron. 12: 35-49 (Exhibit 35);
- 36. Robertson, H. M. (1998) Two large families of chemoreceptor genes in the nematodes Caenorhabditis elegans and Caenorhabditis briggsae reveal extensive gene duplication, diversification, movement, and intron loss. Genome Res. 8:449-463 (Exhibit 36);
- 37. Ryba, N.J., and Tirindelli, R. (1997) A new multigene family of putative pheromone receptors. Neuron 19: 371-379 (Exhibit 37);
- 38. Singh, R. N. (1997) Neurobiology of the Gustatory Systems of Drosophila and Some Terrestrial Insects. Microscopy Research and Technique 39: 547-563 (Exhibit 38);
- 39. Stocker, R.F. (1994) The organization of the chemosensory system in Drosophila melanogaster: a review. Cell Tissue Res. 275: 3-26 (Exhibit 39);
- 40. Talluri, S. et al (1995) Identification of a Drosophila G Protein α Subunit (dG_q α -3) Expressed in Chemosensory Cells and Central Neurons. Proc. Natl. Acad. Sci. USA 92: 11475-11479 (Exhibit 40);

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- 41. Troemel, E.R., Chou, J. H., Dwyer, N.D., Colbert, H. A., and Bargmann, C.I. (1995) Divergent seven transmembrane receptors are candidate chemosensory receptors in C. elegans. Cell. 83: 207-218 (Exhibit 41);
- 42. Ueno, K. et al (2001) Trehalose Sensitivity in Drosophila Correlates with Mutations in and Expression of the gustatory Receptor Gene Gr5a. Current Biology 11: 1451-1455 (Exhibit 42);
- 43. Vosshall, L. et al (1999) A Spatial Map of Olfactory Receptor Expression in the Drosophila Antenna. *Cell* 96: 725-736 (Exhibit 43);
- 44. Vosshall, L. et al (2000) An Olfactory Sensory Map in the Fly Brain. Cell 102: 147-159 (Exhibit 44); and
- 45. Wells, J.A. (1990) Additivity of mutational effects in proteins. Biochemistry 29:8509-8517 (Exhibit 45).

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicants' undersigned attorney invites the Examiner to telephone him at the number provided below.

Serial No.: 10/081,816 Filed: February 22, 2002

Page: 8

Applicants are filing this Information Disclosure Statement under 37 C.F.R §1.97(b)(3) before the mailing of a first Office Action Accordingly, no fee is deemed necessary in on the merits. connection with the filing of this Information Disclosure However, if a fee is required, authorization is Statement. hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

Respectfully Submitted,

hereby certify that correspondence is being deposited this date with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

G10/02

Date

Alan D. Miller

Req. No. 42,889

John P. White

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Registration No. 42,889

Attorneys for Applicants Cooper & Dunham LLP

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Applicants: Richard Axel and Kristin Scott U.S. Serial No.: 10/081,816

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